

WHAT IS CLAIMED IS:

- 1 1. A process of imparting corrosion resistance to a substrate for
2 use in a marine environment by coating said substrate with a polyurethaneurea, said
3 process comprising:
4 mixing
5 a) an A-side of a polyurethaneurea coating comprising an
6 isocyanate-terminated prepolymer prepared by reacting an excess of a diisocyanate
7 with at least one hydrophobic polyoxyalkylene diol having a molecular weight of
8 from 400 Da to 4000 Da;
9 with
10 b) a B-side containing a diamine and a hydrophobic
11 polyoxyalkylene diol having a molecular weight determined by its hydroxyl number
12 of from 200 Da to 4000 Da, in a weight ratio of diamine to hydrophobic
13 polyoxyalkylene diol of from 1:10 to 10:1;
14 to form a curable polyurethaneurea mixture having an NCO/OH ratio
15 of from 0.85 to 1.15;
16 c) spraying said curable mixture onto said substrate, and curing
17 said mixture to form a polyurethaneurea coating on said substrate.
- 1 2. The process of claim 1, wherein at least one hydrophobic
2 polyoxyalkylene diol is selected from the group consisting of polytetramethylene
3 ether glycols and low unsaturation polyoxypropylene diols.
- 1 3. The process of claim 1, wherein the ratio of diamine to
2 hydrophobic polyoxyalkylene diol in said B-side is from 3:1 to 1:3.
- 1 4. The process of claim 1, wherein said A-side polyoxyalkylene
2 diol comprises at least one polytetramethylene ether glycol having a molecular
3 weight between 500 Da and 1000 Da and a further polyoxyalkylene diol such that
4 a diol component having a bimodal molecular weight distribution is reacted with
5 said diisocyanate.

1 5. The process of claim 1, wherein said diisocyanate is toluene
2 diisocyanate.

1 6. The process of claim 1, wherein said diamine comprises
2 diethyltoluene diamine.

1 7. The process of claim 1, wherein said A-side and said B-side
2 have viscosities of 500 cp or less at 160° F.

1 8. The process of claim 1, wherein said substrate comprises
2 brass, bronze, bright metal, zinc, magnesium, aluminum, non-stainless steel, or
3 stainless steel.

1 9. The process of claim 1, wherein said substrate comprises non-
2 stainless steel, magnesium, or aluminum.

1 10. The process of claim 1, wherein said substrate comprises a
2 fiber-reinforced polymer.

1 11. The process of claim 1, wherein said substrate comprises both
2 a metal and a fiber-reinforced polymer.

1 12. The process of claim 1, wherein said substrate is first coated
2 with a primer coating prior to coating with said polyurethaneurea.

1 13. A marine component for mounting on a water vessel,
2 comprising a substrate coated by the process of claim 1.

1 14. The component of claim 13, wherein said component
2 comprises aluminum, non-stainless steel, or a mixture thereof.

1 15. A marine component for mounting on a water vessel,
2 comprising a substrate coated by the process of claim 2.

1 16. A marine component for mounting on a water vessel,
2 comprising a substrate coated by the process of claim 3.

1 17. A marine component for mounting on a water vessel,
2 comprising a substrate coated by the process of claim 4.

1 18. The component of claim 13 which is a radar arch, fishing
2 platform, bow rail, or rub rail.

1 19. The component of claim 13 comprising a substrate comprising
2 a metal frame and a thin plastic or fiber-reinforced polymer sheet overlying said
3 frame, and a coating of from 100 to 500 mil of polyurethaneurea applied over said
4 substrate.

1 20. The component of claim 19, wherein said polyurethaneurea
2 coating is effective to increase the rigidity of the substrate.